

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Appln. No. : 10/554,624 Examiner: Karen YOUNKINS
(U.S. National Stage of PCT/JP2004/097125)
I.A. Filed : April 27, 2004 Confirmation No. : 7272
For : NOZZLE DEVICE AND HYGIENIC WASHING DEVICE

RESPONSE UNDER 37 CFR § 1.112

Commissioner for Patents
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Randolph Building
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In response to the Official Action dated August 18, 2011, setting a shortened three-month statutory period for response to expire on November 18, 2011, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections in view of the herein-contained remarks. However, if any extension of time is necessary, this is an express request for any necessary extension of time and authorization to charge any required extension of time fee or any other fees which may be required to preserve the pendency of the present application to Deposit Account No. 19-0089.

Amendments to the Claims begin on page 3 of this document.

Remarks begin on page 17 of this document.

AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A nozzle device, comprising:

a spray hole for spraying washing water;

a pipe forming a first flow path configured to ~~introduce the washing water to the spray hole~~ extend in a first direction; and

a cover member configured to surround the pipe and extend in the first direction ~~having the spray hole, the cover member surrounding the pipe, the cover member being integrally formed of a cylindrical metal and having a surface extending in the first direction, the spray hole being provided on a longitudinally extending surface the surface extending in the first direction~~ of the cover member, and a front end of the cover member being closed so as to prevent the washing water from exiting therethrough in the first direction and extending traverse to a longitudinal axis of the cover member so as to prevent the washing water from exiting therethrough,

a space between an outer surface of the pipe and an inner peripheral surface of the cover member forming a second flow path, ~~configured to introduce the washing water to the spray hole, wherein~~

the second flow path ~~[[is]]~~ being configured to surround the outer surface of the pipe in a circumferential direction of the cover member,

the nozzle device further comprising: a spray member configured to merge the

washing water to be supplied from the first flow path and the washing water to be supplied from the second flow path and introduce the merged washing water into the spray hole to cause the washing water to be sprayed from the spray hole in a second direction crossing the first direction.

2. (Cancelled)

3. (Currently Amended) The nozzle device according to ~~claim 2~~ claim 1, further comprising:

the spray member having an internal space with an opening at one end and ~~[[the]]~~ an orifice at another end,

the first flow path configured to introduce the washing water into the internal space from an open end in the first flow path,

the second flow path configured to introduce the washing water to the internal space from a peripheral surface of the spray member, and

the internal space having a cross-sectional area that gradually or continuously decreases from the opening to the orifice.

4. (Currently Amended) The nozzle device according to claim 3, wherein,

in order from the opening to the orifice,

the internal space includes ~~[[a]]~~ first, second and third space ~~spaces~~ having a common axis extending in the second direction ~~a first inner diameter, a second space having a second inner diameter smaller than the first inner diameter, and a third space~~

having a third inner diameter smaller than the second inner diameter, and

the first, second and third spaces have circular cross sections of which centers are on the common axis, a diameter of the circular cross section of the second space is smaller than a diameter of the circular cross section of the first space, and a diameter of the circular cross section of the third space is smaller than the diameter of the circular cross section of the second space,

the second flow path is configured to supply the washing water to the second space.

5. (Previously Presented) The nozzle device according to claim 4, wherein

the second space comprising a cylindrical space, and

the second flow path is configured to supply washing water along an inner peripheral surface of the cylindrical space.

6. (Previously Presented) The nozzle device according to claim 5, wherein an axis of the second flow path is directed inward from a peripheral wall of the cylindrical space.

7. (Currently Amended) The nozzle device according to claim 4, wherein the diameter of the circular cross section of the first space ~~has an inner diameter that~~ continuously decreases from the opening to the second space.

8. (Currently Amended) The nozzle device according to claim 4, wherein the diameter of the circular cross section of the third space ~~has an inner diameter that~~ continuously

decreases from the second space to the orifice.

9. (Previously Presented) The nozzle device according to claim 5, wherein the inner diameter of the cylindrical space is two times to five times the inner diameter of the orifice.

10. (Currently Amended) The nozzle device according to claim 3, wherein a cross-sectional area of [[he]] the first flow path is larger than a cross-sectional area of the opening of the internal space.

11. (Currently Amended) The nozzle device according to ~~claim 2~~ claim 1, wherein
the spray hole is formed on the ~~longitudinally extending~~ surface extending in the first direction in a vicinity of a front end of the cover member, and
the spray member is inserted into the front end of the cover member.

12. (Previously Presented) The nozzle device according to claim 1, wherein the front end of the cover member has a substantially hemispherical shape.

13. (Previously Presented) The nozzle device according to claim 1, wherein the cylindrical metal is stainless.

14. (Previously Presented) The nozzle device according to claim 1, wherein the cover member is formed by drawing forming.

15. (Currently Amended) The nozzle device according to claim 1, wherein a part of ~~the longitudinally extending surface~~ extending in the first direction in a vicinity of the front end of the cover member is formed so as to have a flat surface, and the spray hole is formed on the flat surface.

16. (Currently Amended) The nozzle device according to ~~claim 2~~ claim 1, wherein the spray hole has a larger inner diameter than the orifice.

17. (Currently Amended) The nozzle device according to ~~claim 2~~ claim 1, wherein the spray member has a positioner abutting against an inner surface of the front end of the cover member such that the orifice is positioned relative to the spray hole.

18. (Currently Amended) The nozzle device according to ~~claim 2~~ claim 1,
further comprising a positioner defined by
a first flat portion formed in the cover member, and
a second flat portion formed in the spray member,
the pipe being inserted into the cover member such that the second flat portion in
the spray member is opposite to the first flat portion in the cover member.

19. (Previously Presented) The nozzle device according to claim 18, further comprising
an annular sealing member for watertightly sealing an area between the spray member
around the orifice and the cover member around the spray hole.

20. (Previously Presented) The nozzle device according to claim 17, wherein

the positioner comprises:

a front end abutment portion provided on a front end of the spray member and abutting against the inner surface at the front end of the cover member.

21. (Withdrawn) The nozzle device according to claim 17, wherein

the positioner comprises

a peripheral surface abutment portion provided in the spray member and abutting against an inner peripheral surface of the cover member.

22. (Withdrawn) The nozzle device according to claim 17, wherein

the positioner comprises

an engagement portion provided at a rear end of the cover member, and

a portion to be engaged, provided at a rear end of the pipe, with which the engagement portion is engaged.

23. (Withdrawn) A sanitary washing apparatus that sprays washing water supplied from a water supply source to the human body, comprising:

pressure means for pressurizing the washing water supplied from said water supply source;

a nozzle device; and

path selection means for selectively supplying the washing water pressurized by

said pressure means to one or both of said first flow path and said second flow path in said nozzle device,

said nozzle device comprising

a spray hole for spraying washing water,

a pipe forming the first flow path that introduces the washing water to said spray hole, and

a cover member having a spray hole, provided so as to surround said pipe, and integrally formed of a cylindrical metal whose front end is closed,

a space between said pipe and said cover member forming said second flow path that introduces the washing water to said spray hole.

24. (Withdrawn) The sanitary washing apparatus according to claim 23, wherein

said e path selection means comprises

flow rate adjustment means for adjusting the ratio of the respective flow rates of the washing water supplied to the first flow path and the washing water supplied to the second flow path.

25. (Withdrawn) The sanitary washing apparatus according to claim 23, further comprising

heating means for heating the washing water supplied from said water supply source to supply the heated washing water to said pressure means,

said heating means being an instantaneous heating device that heats the washing water supplied from said water supply source while causing the washing water to flow.

26. (Withdrawn) A nozzle device, comprising:

a cylindrical human body washing nozzle having a spray hole for spraying washing water to the private parts of the human body; and

a nozzle cleaning member having an inner peripheral surface in a substantially cylindrical shape surrounding an outer peripheral surface of said human body washing nozzle,

said human body washing nozzle being provided so as to be storable in said nozzle cleaning member and projectable from said nozzle cleaning member,

said nozzle cleaning member having a washing water introduction hole for introducing the washing water into an annular space between the outer peripheral surface of said human body washing nozzle and the inner peripheral surface of said nozzle cleaning member to spirally swirl the introduced washing water.

27. (Withdrawn) The nozzle device according to claim 26, wherein

said human body washing nozzle comprises

a cylinder having a cylindrical inner peripheral surface, and

a cylindrical piston that can be accommodated within said cylinder and can project from said cylinder and has a spray hole at its front end,

said nozzle cleaning member being provided so as to surround the vicinity of the front end of said piston in a state where said piston is accommodated within said cylinder,

said piston being mounted on said cylinder so as to be swingable within said nozzle cleaning member.

28. (Withdrawn) The nozzle device according to claim 27, wherein

said piston comprises

a pipe forming a first flow path that introduces the washing water to said spray hole,

a cylindrical cover member having said spray hole, provided so as to surround said pipe, and closed at its front end, a second flow path that introduces the washing water to said spray hole being formed between said cover member and said pipe, and

a spray member, provided at a front end of said pipe and having an orifice, for merging the washing water supplied from said first flow path and the washing water supplied from said second flow path to introduce the merged washing water into said orifice.

29. (Withdrawn) The nozzle device according to claim 26, wherein said washing water introduction hole is provided such that the washing water introduced into said nozzle cleaning member can be sprayed in a direction substantially tangential to an outer peripheral surface of said human body washing nozzle.

30. (Withdrawn) The nozzle device according to claim 26, wherein a front end of said human body washing nozzle projects from said nozzle cleaning member when the human body washing nozzle is stored.

31. (Withdrawn) A sanitary washing apparatus that sprays washing water supplied from

a water supply source to the human body, comprising:

a nozzle device;

first washing water supply means for supplying washing water to said human body washing nozzle in said nozzle device,

second washing water supply means for supplying washing water to said washing water introduction hole of said nozzle device; and

a heating device that instantaneously heats the washing water supplied from said water supply source,

the washing water heated by said heating device being vapor,

said nozzle device comprising

a cylindrical human body washing nozzle having a spray hole for spraying washing water to the private parts of the human body, and

a nozzle cleaning member having an inner peripheral surface in a substantially cylindrical shape surrounding an outer peripheral surface of said human body washing nozzle,

said human body washing nozzle being provided so as to be storable in said nozzle cleaning member and projectable from said nozzle cleaning member,

said nozzle cleaning member having a washing water introduction hole for introducing washing water into an annular space between the outer peripheral surface of the human body washing nozzle and the inner peripheral surface of said nozzle cleaning member to spirally swirl the introduced washing water.

32. (Withdrawn) The sanitary washing apparatus according to claim 31, further

comprising

a toilet seat,

a human body detection sensor that detects the presence or absence of the human body on said toilet seat, and

a controller that controls the supply of the washing water to said washing water introduction hole by said second washing water supply means on the basis of an output of said human body detection sensor,

said controller not supplying the washing water heated by said heating device to said washing water introduction hole when said human body detection sensor detects the human body.

33. (Withdrawn) The sanitary washing apparatus according to claim 31, further comprising

a branched pipe that can discharge a part or all of the washing water supplied from said water supply source outward,

the second washing water supply means supplying at least a part of the washing water flowing in said branched pipe to said washing water introduction hole.

34. (Withdrawn) A sanitary washing apparatus comprising:

a nozzle device having a spray hole for spraying washing water supplied from a water supply source to the human body;

divergent angle adjustment means for changing the divergent angle of the washing water sprayed from said spray hole of the nozzle device;

advancing or retreating driving means for moving said nozzle device so as to advance or retreat between a forward position and a backward position; and

control means for controlling said advancing or retreating driving means and said divergent angle adjustment means such that the advancing or retreating movement of the nozzle device by said advancing or retreating driving means and the change in the divergent angle of the washing water from said spray hole of said nozzle device are combined with each other.

35. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls the advancing or retreating driving means and said divergent angle adjustment means such that the divergent angle of the washing water from said spray hole of said nozzle device is changed while said nozzle device repeats the advancing or retreating movement between said forward position and said backward position.

36. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls the advancing or retreating driving means and said divergent angle adjustment means such that the washing water from said spray hole of said nozzle device is alternately switched to dispersed flow and linear flow while said nozzle device repeats the advancing or retreating movement between said forward position and said backward position.

37. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls said advancing or retreating driving means and said divergent angle adjustment means such that the divergent angle of the washing water from said spray hole of said nozzle device is changed while said nozzle device is moving from said forward position to said backward position or from said backward position to said forward position.

38. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls said advancing or retreating driving means and said divergent angle adjustment means such that the washing water from said spray hole of said nozzle device is switched to linear flow and dispersed flow while said nozzle device is moving from said forward position to said backward position or from said backward position to said forward position.

39. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls said advancing or retreating driving means and said divergent angle adjustment means such that the divergent angle of the washing water from said spray hole of said nozzle device is changed in a state where said nozzle device is stopped for a predetermined time period at said forward position or said backward position.

40. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls said advancing or retreating driving means and said divergent angle adjustment means such that the washing water from said spray hole of the

nozzle device is alternately switched to dispersed flow and linear flow in a state where said nozzle device is stopped at said forward position or said backward position.

41. (Withdrawn) The sanitary washing apparatus according to claim 34, further comprising

setting means for setting a combination of the advancing or retreating movement of said nozzle device by said advancing or retreating driving means and the change in the divergent angle of the washing water from said spray hole of the nozzle device.

42. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said nozzle device comprises

a first flow path that introduces the washing water from said water supply source to said spray hole,

a second flow path that introduces the washing water from said water supply source to said spray hole, and

rotating flow generation means for generating rotating flow in the washing water in said first flow path, and

said divergent angle adjustment means comprises flow rate adjustment means for adjusting the respective flow rates of the washing water supplied to said first flow path and the washing water supplied to said second flow path.

43. (Withdrawn) The sanitary washing apparatus according to claim 42, wherein

said rotating flow generation means has a cylindrical chamber, and

the washing water in said first flow path is supplied along an inner peripheral surface of said cylindrical chamber.

44. (Withdrawn) The sanitary washing apparatus according to claim 34, further comprising

pressure means for pressurizing the washing water while subjecting the washing water supplied from said water supply source to periodical pressure fluctuations, to supply the pressurized washing water to said nozzle device.

45. (Withdrawn) The sanitary washing apparatus according to claim 34, further comprising

heating means for heating the washing water supplied from said water supply source to supply the heated washing water to said pressure means.

46. (Withdrawn) The sanitary washing apparatus according to claim 45, wherein

said heating means is an instantaneous heating device that heats the washing water supplied from said water supply source while causing the washing water to flow.

47. (Canceled)

REMARKS/ARGUMENTS

Initially, Applicants would like to express appreciation to the Examiner for the detailed Official Action provided.

Upon entry of the above amendments, claims 1, 3, 4, 7, 8, 10, 11 and 15-18 will have been amended, and claim 2 will have been cancelled without prejudice or disclaimer to the subject matter therein. Claims 1 and 3-46 are currently pending, with claims 21-46 being withdrawn from consideration. Applicants respectfully requests reconsideration of the outstanding rejections, and allowance of all the claims pending in the present application.

Rejection under 35 U.S.C. 112

In the Official Action, the Examiner has rejected claims 4-9 and 20 under 35 U.S.C. § 112, second paragraph.

In particular, the Examiner asserts in page 2, paragraph 4, that the “[t]he definition of diameter is the length of a straight line passing through the center of a circle and connecting two points on the circumference. The distance referred to by the applicant, from opening to orifice, is not a circle. Therefore this distance cannot be a diameter.”

Applicants respectfully traverse the Examiner’s rejection. In this regard, Applicants submit that claim 4 *does not* refer to a distance from opening to orifice, but rather an internal space that extends from opening to orifice. The internal space includes first, second and third spaces, in this order, from opening to orifice. For example, a first space 25c, a second 25b, and a third space 25a. Thus, it is each of the first, second and

third spaces which have respective diameters in accordance with the recitations of claim 4.

Nevertheless, without acquiring to the propriety of the Examiner's rejection, Applicants have amended claim 4 in order to further clarify this feature.

Further, the Examiner asserts that "claim 20 currently requires a second front end. However, there is only one front end described in the specification. For the purposes of examination the examiner assumes the applicant intends to claim the front end of 20 as the same front end in claim 17 (from which claim 20 depends)."

In this regard, Applicants submit that claim 17 recites "the front end of the cover member," which is separate from "the front end of the spray member" as recited in claim 20. Accordingly, Applicants respectfully submit that the features recited in the claims are clear.

Thus, Applicants submit that the rejection under 35 U.S.C. § 112 is improper and should be withdrawn.

Rejection under 35 U.S.C. 103

In the Official Action the Examiner rejected claims 1-20, as best as currently understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,182,860 to GALLO.

Without acquiescing to the propriety of the Examiner's rejection, Applicants have amended claim 1 solely in order to expedite prosecution of the present Application.

In particular, Applicants note that amended claim 1 recites a nozzle device, including a spray hole for spraying washing water; a pipe forming a first flow path

configured to extend in a first direction; and a cover member configured to surround the pipe and extend in the first direction, the cover member being integrally formed of a cylindrical metal and having a surface extending in the first direction, the spray hole being provided on the surface extending in the first direction of the cover member, and a front end of the cover member being closed so as to prevent the washing water from exiting therethrough in the first direction, a space between an outer surface of the pipe and an inner peripheral surface of the cover member forming a second flow path, the second flow path being configured to surround the outer surface of the pipe in a circumferential direction of the cover member, the nozzle device further comprising: a spray member configured to merge the washing water to be supplied from the first flow path and the washing water to be supplied from the second flow path and introduce the merged washing water into the spray hole to cause the washing water to be sprayed from the spray hole in a second direction crossing the first direction.

In setting forth the rejection, the Examiner apparent considers a nozzle element 22 of GALLO to be a spray hole, an inner element 30 as a pipe forming a first flow path, a main body portion 16 and a frusto-conical portion as a cover member, and a space between the main body portion 16 and the inner element 30 as a second flow path of the present invention. Further, in rejecting claim 2, the Examiner apparently considers the area denoted by reference numerals 28 and 34 as a spray member.

Contrary to the Examiner's assertions, Applicants submit that the presently claimed invention is very different structurally from the applied prior art.

In particular, Applicants submit that in GALLO the main body portion 16 and the inner element 30 are configured to extend in a direction of the arrow 72, and a central

bore is formed at a front end of the frusto-conical portion. Thus, Applicants submit that in GALLO the water is sprayed in the direction of the arrow from the central bore 24 and is not sprayed in a direction crossing the arrow 72.

This is in direct contrast to the present invention in which the front end of the cover member is closed so as to prevent the water from exiting in the first direction, and...a spray member configured to merge the washing water to be supplied from the first flow path and the washing water to be supplied from the second flow path and introduce the merged washing water into the spray hole to cause the washing water to be sprayed from the spray hole in a second direction crossing the first direction, as generally recited in amended claim 1.

Accordingly, Applicants submit that the rejection of claims 1-20 under 35 U.S.C. § 103(a) is improper and should be withdrawn.

In view of the arguments herein, Applicants submit that independent claim 1 is in condition for allowance. With regard to dependent claims 3-20, Applicants assert that these claims are allowable on their own merit, as well as because they depend from independent claim 1, which Applicants have shown to be allowable.

Additionally, Applicants respectfully request rejoinder of claims 21 and 22 since these claims depend indirectly from claim 1, which Applicants have shown to be allowable.

Thus, it is respectfully submitted that all of the claims in the present application are clearly patentable over the references cited by the Examiner, either alone or in combination, and an indication to such effect is respectfully requested, in due course.

SUMMARY

Applicants submit that the present application is in condition for allowance, and respectfully requests an indication to that effect. Applicants have argued the allowability of the claims and pointed out deficiencies of the applied reference. Accordingly, reconsideration of the outstanding Official Action and allowance of the present application and all the claims therein are respectfully requested and is now believed to be appropriate.

Applicants submit that this amendment is being made to advance prosecution of the application to allowance and should not be considered as surrendering equivalents of the territory between the claims prior to the present amendment and the amended claims. Further, no acquiescence as to the propriety of the Examiner's rejection is made by the present amendment. All other amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions or comments regarding the present response or this application, the Examiner is respectfully invited to contact the undersigned at the below listed number.

Respectfully Submitted,
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